evaluated on the same day of PET imaging.
Results: The subjects were divided into three groups; high FDG uptake (62 of 197, 32%), mild FDG uptake (56 of 197, 28%) and no FDG uptake (79 of 197, 40%). For risk factors, 67 (34%), 77 (39%), 75 (38%), 26 (13%) and 66 (34%) subjects were current smokers, hypertension, hyperlipidemia, diabetes and obesity, respectively. A clear trend to the magnitude of FDG uptake was observed in age ($p<0.0005$), diabetes ($p<0.05$) and hypertension ($p<0.0005$). Multivariate analysis revealed that both hypertension and diabetes were independently associated with FDG uptake after being adjusted by age.
Conclusions: Whole-body FDG PET imaging holds promise for the noninvasive assessment of atherosclerosis in healthy subjects.

1094-152 Suppression of Physiological Myocardial Fluorodeoxyglucose Uptake

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Background F-18-fluorodeoxyglucose (FDG)-PET is concentrated in macrophages at sites of inflammation, providing a means of identifying these lesions on FDG-PET scans. Atheroma have a significant inflammatory component, and can be visualized in large vessels. However, visualizing coronary artery plaque is difficult, due to the high concentration of FDG that often occurs in normal myocardium. This experiment was performed to determine if pretreatment to block alpha or beta adrenergic receptors, or increasing blood levels of fatty acids would reduce the myocardial concentration of FDG. **Methods** A total of 35 C57BL/6 male mice were divided into control and 4 treated groups (n = 7 per group). After an overnight fast, the groups except control were treated with either propranolol (1 mg/kg, IV), intralipid (5 ml of 20 % intralipid/kg, IV), phentolamine (1 mg/kg, IV), or fructose (1.8 mg/kg, orally). One hour later, F-18-FDG (600 microCi) was injected IV. MicroPET^{TM} images were obtained 1 hr post-injection with mice under isoflurane anesthesia. After the PET scan, the animals were sacrificed and the biodistribution of FDG determined. FDG uptake (%ID/g) was calculated by tissue counting. **Result** Propranolol decreased myocardial uptake on the PET images, while controls exhibited the usual intense heart activity. The myocardial uptake was (mean ± SD): control; 6.81 ± 1.8, propranolol; 3.08 ± 1.13 ($p < 0.005$), intralipid; 7.28 ± 3.56 (p = NS), phentolamine; 14.33 ± 3.83 ($p < 0.005$), and fructose; 4.74 ± 2.88 %ID / g (p = NS). Uptake in the aorta was (mean ± SD): control; 6.34 ± 3.32, propranolol; 9.64 ± 2.87 (p = NS), intralipid; 14.01 ± 6.14 ($p < 0.05$), phentolamine; 27.38 ± 21.34 ($p < 0.05$), and fructose; 8.55 ± 3.95 %ID / g ($p < 0.05$). The ratios of aorta / heart were: control; 1.19 ± 0.68, propranolol; 4.20 ± 1.80 ($p < 0.005$), intralipid; 2.83 ± 1.30, phentolamine; 2.14 ± 1.32, fructose; 2.16 ± 0.88. The highest aorta / heart ratio was obtained by treated with propranolol. **Conclusion** Beta blockade was the most successful intervention to reduce myocardial FDG concentration. This finding suggests the possibility of detecting atherosclerosis in coronary arteries by FDG-PET with propranolol pre-treatment.

1094-153 Effects of Surgical Myectomy on Myocardial Energetics and Blood Flow in Patients With Hypertrophic Cardiomyopathy and Symptomatic Left Ventricular Outflow Obstruction

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Background: In symptomatic, drug-refractory hypertrophic cardiomyopathy (HCM) with left ventricular outflow (LVOT) obstruction, surgical myectomy can result in symptom improvement. Invasive data suggest that benefits may relate to an energy-sparing effect and improvement in myocardial blood flow (MBF). The purpose of this study was to determine the effect of myectomy on myocardial oxygen consumption, efficiency, and MBF as measured by positron emission tomography (PET) and echocardiography.
Methods: Seven HCM patients with LVOT gradient >50 mmHg and planned myectomy were assessed. Patients were studied pre- and 3-months post-surgery. Oxidative metabolism (k) was measured using C-11 acetate PET, and stroke volume index (SVI) was measured using echocardiography. The work-metabolic index (WMI) was calculated as follows: [(systolic blood pressure + peak LVOT gradient) × SVI × heart rate]/k. MBF was assessed using PET and N-13 ammonia. A symptom-limited treadmill was used to assess exercise capacity and oxygen consumption, and the Minnesota Living with Heart Failure Questionnaire was completed pre- and post-myectomy.
Results: LVOT gradient was reduced after myectomy (60.85 +/- 45.39 to 5.71 +/- 7.18 mmHg; p = 0.02). Global oxidative metabolism (k = 0.061 +/- 0.024 to 0.058 +/- 0.012 / min; p = 0.59) and regional oxidative metabolism (k = 0.060 +/- 0.022 to 0.057 +/- 0.015 / min; p = 0.15) were unchanged after myectomy. The SVI (25.490 +/- 11.507 to 30.665 +/- 6.885 ml/m^2; p = 0.29) and WMI (3.73 x 10^6 +/- 3.16 x 10^6 to 3.82 x 10^6 +/- 1.94 x 10^6 mmHg x ml/m^2; p = 0.92) were also unchanged. Regional MBF remained stable (0.837 +/- 0.365 to 0.832 +/- 0.209 ml/min/ml; p = 0.89). Treadmill METS increased by 0.8 (p = 0.02) and oxygen consumption trended towards improvement post-myectomy (p = 0.07). NYHA class improved (p = 0.09) while quality of life scores trended towards improvement (p = 0.08).
Conclusion: In HCM patients with LVOT obstruction, myectomy results in reduced gradient, clinical improvement, and increased exercise capacity. However, neither a change in MBF nor an energy-sparing effect could be elucidated as a potential mechanism in this limited sample of patients.

1094-154 Utility of Fluorodeoxyglucose-Positron Emission Tomography for Predicting Left Ventricular Functional Recovery in Patients With Acute Myocardial Infarction After Successful Revascularization: Comparison With Technetium-99m Tetrofosmin SPECT

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Backgrounds: Although positron emission tomography with F-18 fluorodeoxyglucose (FDG-PET) is considered to be one of the most accurate modalities to evaluate myocardial viability in patients with old myocardial infarction, it is not fully elucidated whether it also evaluates myocardial viability in patients with acute myocardial infarction (AMI).
Methods: To assess the ability for detecting myocardial viability in patients with AMI using FDG-PET, we performed FDG-PET and technetium-99m tetrofosmin SPECT (TF), as an index of myocardial blood flow, at 2 weeks after the onset of AMI in 16 patients whose infarct-related arteries were successfully revascularized within 24 hours after the onset. For image analysis, the left ventricle was divided into 9 segments, and the mean %uptake of FDG (%FDG) and TF (%TF) in infarct-related segments was calculated.
The left ventriculography was also performed immediately after revascularization (LVG1) and one month later (LVG2), then we determined the wall motion score (WMS, normal: 0~dyskinesis: 4).
Results: Of total 144 segments, 78 showed abnormal wall motion on LVG1 (infarct-related segment: IRS). In IRS, 46 (G) were preserved glucose metabolism (%FDG≥45%) and 32 (non-G) were not. In G, 37 (80%) showed significant improvement of LV wall motion on LVG2. In non-G, only 9 (28%) showed the improvement of WMS ($p<0.01$ vs. G). On the other hand, 48 segments (F) showed preserved myocardial blood flow (%TF≥55%) and 30 (non-F) were not in IRS. In F, 40 (87%) showed significant improvement of WMS on LVG2. In non-F, only 6 (20%) showed the improvement of WMS ($p<0.01$ vs. F). The %FDG≥45% was an optimal threshold yielding a sensitivity of 80% and specificity of 72%. The %TF≥55% was the best cut-off value resulting in a sensitivity of 87% and a specificity of 75%. Of 9 segments showed flow-metabolism mismatch (FDG≥45% and %TF<55%), only 3 (33%) exhibited the improvement of WMS. On the other hand, 6 out of 11 segments (55%) showed reverse mismatch (%FDG<45% and %TF≥55%), demonstrated significant improvement of WMS.
Conclusions: In patients with AMI, FDG-PET can well predict functional recovery of LV wall motion. However, this predictive accuracy did not predominate over TF.

1094-155 Atrial Fibrillation Reduces Endothelium-Independent Myocardial Perfusion Reserve: A Quantitative Study Using Positron Emission Tomography

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Background: Many patients with atrial fibrillation (AF) present with symptoms of myocardial ischemia despite having non-pathologic coronary vessels. As a reason for that a regulatory disorder of the small vessels has been discussed. It is therefore of crucial interest to investigate myocardial perfusion and perfusion reserve (PR) in AF patients and measure the influence of different interventions on these functional parameters. This study aimed to quantify the perfusion and PR of the heart of AF patients non-invasively by positron emission tomography and radioactive-labeled water ($H_2{}^{15}O$-PET) at baseline as well as three months after restoration of sinus rhythm by electrical cardioversion.
Methods: Thirteen patients (10 male, 3 female, age: 58±12y) with a history of persistent AF without underlying structural heart disease were enrolled in this study. They were examined during AF as well as three months after restoration of sinus rhythm. Using $H_2{}^{15}O$-PET, myocardial perfusion was measured at rest as well as during intravenous adenosine infusion (140 µg/kg body weight per min) to obtain the endothelium-independent myocardial PR.
In addition to the analysis of interindividual changes, values were also compared to a group of healthy volunteers (n=23).
Results: Endothelium-independent myocardial PR proved to be significantly lower in patients with AF as compared to the control group (2.01±1.02 vs. 3.82±1.34 ml/min/g; $p<0.001$) with a slight, statistically non-significant, trend towards normalization 3 months after cardioversion (2.77±0.96; p=ns vs. baseline). In the same patients, the additionally measured endothelium-dependent PR using the cold-pressor-test did not reveal changes between AF patients and controls as well as between baseline and 3 months follow-up measurements in AF patients.
Conclusion: The results of this study indicate that in AF endothelium-independent but not endothelium-dependent myocardial PR is impaired with only a trend towards normalization 3 months after restoration of sinus rhythm. Studies with longer follow-up intervals and more patients are warranted to give further insight into the role of perfusion in AF.

1094-156 Usefulness of Primary Percutaneous Coronary Intervention With Thrombectomy Plus Distal Protection System for Acute Myocardial Infarction: Assessment of Salvaged Myocardium With a Rest Thallium-201 and Iodine-123 BMIPP SPECT

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Background: Distal embolization during angioplasty may deteriorate the tissue perfusion. Primary angioplasty with thrombectomy plus distal protection system (DP) may be more useful for patients (pts) with acute myocardial infarction (MI). We evaluated salvaged myocardium with SPECT images of myocardial perfusion and free fatty acid